

SYNTAX

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PERSONAL COMPUTERS

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SINCLAIR CLARIFIES PARTS POSITION

Sinclair only sells replacement parts to kit owners who received damaged parts with their kits. Contrary to some reports, parts are not generally available for all ZX/TS owners. Also, Sinclair no longer sells the kits.

TIMEX SLASHES PRICE

Timex lowered their TS1000 price to \$69.95 and extended the \$15 rebate deadline to April 30. The TS2000 release date is slated for the second quarter but most observers agree this is optimistic. Still no information on the release of the 16K TS1500.

NEW ZX/TS PUBLICATION

Timex-Sinclair User, a monthly magazine imported from the U.K., debuts in N. America in May. Price: \$2.95 per issue, \$29.95 per year. ECC Publications Inc., 49 La Salle Ave., Buffalo, NY 14217, 716/834-1972.

EXCLUSIVE ZX/TS EXHIBITION

SIN-TIME Exhibition will sponsor 10-15 ZX/TS vendors at the Dunfey Houston Hotel on April 28-9 from 10A-8P. Adult admission is \$10 for both days, includes subscription to SIN-TIME Review. Michael Robinson, SON Productions, POB 742163, Houston, TX 77274.

SOFTWARE COMPANY SEEKS PROGRAMMERS

Pegasus Micro Systems is currently looking for programmers to write new software. Royalties range from 50 to 80 percent of profit, depending on the amount of work your program needs to reach market and what percent of that work you contribute. Pegasus also just announced new ZX/TS software. For details, contact Pegasus Micro Systems, POB 397, Chestertown, MD 21620.

NEW PRODUCTS AND SERVICES

Easy Eye Filter gives yellow screen on b/w TV or monitor. Comes with stick-on fasteners, 10" x 12" trimmable to smaller sizes, special order larger sizes. \$12.95 plus \$2 P&H. Strap Down is a pre-cut and punched strap to hold your ZX/TS and RAM pack. Includes cable clamp to organize cables, \$5.95 plus \$1 P&H. Artisan Electronics, POB 6631, Portsmouth, VA 23793.

Individual instruction packs on ZX/TS video, keyboard, loading and saving, and memory packs. Covers trouble shooting, tips and hints. \$7 each, Spectra Computer Products, POB 41795, Tucson, AZ 85717.

Free membership to Timex Computer Club and monthly newsletter. Timex Computer Club, Margot Murphy, POB 2655, Waterbury, CT 06725.

ZX/TS bulletin board free, \$15 one-time membership fee activates special features--in Nashua, NH. Call 300/1200 baud data-line 603-888-6999. Chuck Oropallo is SYSOP, 6 April Dr., Nashua, NH 03060. Leave messages on-line for user 10053 or mail to Jim Giddings, 77 Ives St. #305, Providence, RI 02906.

16K Mail Master program has edit and search routines. Options are: add names, list, edit, inform, search/view, and search/print. Supports ZX/TS-compatible printers. 16K Data Master has full edit and search routines. 16K Chart Master generates and analyzes bar charts. Tape with manual \$6.95 each. Free catalog available. L. Harmon, 4909 Clearlake Dr., Metairie LA 70002.

CFASTDATA utility lets you write data to tape from strings, arrays or memory locations. Helps translate BASIC programs with WRITE and INPUT statements. Needs 16K or more, \$20 plus \$1.50 P&H. CFASTDUET has two utilities, CFASTLOAD

and CFASTDATA. Use together to write and load quicker. Needs 16K, \$27.50 plus \$1.50 P&H. Cosmonics, POB 10358, San Jose, CA 95157.

Memotext word processor with editing features puts 32-character lines on screen. Memopak Assembler codes, edits Z80 source programs and assembles into MC. \$49.95 each, Memotech, 7550 W. Yale Ave., Denver, CO 80227, 800/662-0949.

ZX/TS XFORTH language uses a simple one word call to return to BASIC. Needs 16K, leaves 10K for user code and dictionary enhancement. Also has extra utilities such as PLOT, CLS, RAND. Pre-publication release offer until April 23, \$14 plus \$1 P&H. Hawg Wild Software, 7575 Cantrell/21, Little Rock, AR 72207.

New free catalog of computer interference control products (#831) helps cut out interference on your ZX/TS. Electronic Specialists, Inc., 171 South Main St., Natick, MA 01760, 617/655-1532.

Z-TOOLS machine code utilities include: MERGE combines two BASIC programs; RENUM rennumbers selected lines, includes numbered GOTOs and GOSUBs and flags those with expressions; COPY and DELETE selected blocks of lines; VERIFY checks tape contents against memory. Two 16K versions: one addressed to 14-16K, and to 8-10K. \$14.95, Sinware, Box 8032, Santa Fe, NM 87504.

Reverse Video Module converts characters to white on dark background. Module with instructions, \$8.95. 16K Easy Graph converts data into bar graph, \$9.95. 16K ACZ General Ledger records ledger transactions, handles up to 400 entries, \$29.95. Cottage Technology, 5720 W. Little York, Suite 178, Houston, TX 77091.

Z-XLR8 tape storage system SAVES and LOADs files 6-10x faster than standard LOAD/SAVE. Error checking

insures proper program loading. Cassette tape version can relocate between 8-32K, needs 16K, \$11 ppd. EPROM version resides between 14-16K, \$21 ppd. Advanced Interface Designs, POB 1350, State College, PA 16801, 814/237-9268.

Sunbelt Conference on Educational Computing, June 1-4, offers ZX/TS instruction for both novices and advanced users. Films, exhibits, demonstration lab, and public domain software exchange also included. Dr. Jerry Willis, c/o College of Education, Box 4560, Texas Tech University, Lubbock, TX 79409, 806/742-2381.

16K Biorythm/Compatibility program computes emotional, physical and intellectual cycles for any month. Gives degree of compatibility between two people based on biorythmic cycles. Tape \$9.95 plus \$1.50 P&H. Software Unlimited, POB 147, Grandview, MO 64030.

TITLE FRAMING AND CENTERING

You can dress up displays by adding the following listing to the beginning of your programs.

Title Framing accepts up to 29 characters and centers them on any line from 1 to 20.

Inverse graphics are:

Line 20--graphic 5, 8

Line 40--graphic 6

Line 50--graphic 7

Try graphic A (checked border) or asterisk (shift B; inverse asterisk border) in place of all graphics for variation.

RUN in FAST, BREAK to exit.

W.C. Andrews, San Anselmo, CA

```

5 LET L=10
10 INPUT A$
20 PRINT AT L, (31-(LEN A$+2))/
2;"█";A$;"█"
30 FOR N=0 TO (LEN A$+1)
40 PRINT AT L-1, (31-(LEN A$+2)
)/2+N;"█"
50 PRINT AT L+1, (31-(LEN A$+2)
)/2+N;"█"
60 NEXT N
SYNTACTIC SUM: 10754. 8K ROM

```

SYNTAX ERRORS: In R. Hensley's Expanding Existing 16K Programs, Jun.82, Jerry Minchy reports that the last two POKES, step 4, are:
POKE 16386,252
POKE 16387,254

USERS' GROUPS

To announce or locate a group not listed, drop us a line (with SASE) or call 617/456-3661. SYNTAX, RD 2, Box 457, Harvard, MA 01451.

Aberdeen, NJ: R.B. Mawby, 62 Avondale Ln., Aberdeen, NJ 07747, 201/566-7498.

Altadena, CA: Irving Helbling, 1785 La Paz Rd., Altadena, CA 91001, 213/797-3729.

Chestertown, MD: Baltimore Users' Group, POB 397, Chestertown, MD 21620, 301/348-5865.

Hillsborough, Pasco, Pinellis and St. Petersburg Counties, FL: TAS BAM--Timex and Sinclair Bay Area Microcomputer Group, Mel Routt, POB 644, Safety Harbor, FL 33572.

Lakewood, CO: Jim Sandon, 500 Vance #116, Lakewood, CO 80215, 303/233-3412.

San Francisco, CA: Users' Group of the Presidio of San Francisco, Fred Hall, 246 29th Ave., San Francisco, CA 94121, 415/221-4790.

Rio de Janeiro, Brazil: Walter Brandao, Rua Cesario Alvim, 55 Apt. 107, Bl.A 22261, Botafogo, Rio de Janeiro, Brazil.

Toronto, Ontario, Canada: Timex-Sinclair Users' Club, POB 7274, Station A, Toronto, Ont., Canada M5W 1X9.

West Palm Beach, FL: The South Florida ZX Users' Group, Bob Pearsall, 9220 Fountain Rd., Lake Worth, FL 33463, 305/967-7784.

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VENDOR REPORT

In response to complaints about undelivered software from SMUG, Sinclair Midwest Users Group director Robert Carroll says SMUG (advertised in SYNTAX classifieds, Mar.82) and the users group have not been affiliated since Mar.82. Initially, the users' group lent a helping hand to the two entrepreneurs who started SMUG. Carroll says they have no information on SMUG's present status or orders taken by them. But, the users' group would like to try to rectify the situation. Carroll says they do have some of the software SMUG was selling. Drop them a line with proof of order and non-receipt of goods (cancelled check, etc.) and they will try to fill your order. Address to: Attn. Lost Software, Sinclair Midwest Users Group, POB 13042, Fort Wayne, IN 46866.

Unresolved problems with Norris Electronics? Originally of Slidell LA, Tracy Norris is now at: 410 S. Gatehouse, Apt. A, Metairie, LA 70001, 504/837-8152. Tracy did contact us, but we have not heard from his customers.

Aerco reports that their floppy disk interface has a 2 1/2 week production back-log. Aerco, Box 18093, Austin, TX 78760-8093, 512/385-7405.

Manager Ken Koster of Gladstone in Buffalo reports that they are now shipping out in-stock items in two to three days. He also clarified their phone numbers, reported last month. For orders only till 1AM, call 800/833-8400. For information, questions and problems, call 716/874-5510 (9-5 EST).

M-Coder, a compiler from Kopak, is supposed to code 99.9 percent of all BASIC. After checking, Kopak discovered this is untrue and will discontinue the program.

MOTHERSHIP 16K

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(212) 685-2080

SOFTWARE REVIEW

Product: RAM-Drive
 Price: undetermined
 ROM/RAM required? 8K/64K
 Printed listings? No
 Program listable? No
 Written in: Machine Code
 Written by: Peter Ulrick
 From: International Publishing and Software, 49 La Salle Ave. Buffalo, NY 14214

RAM-Drive is a machine code utility program that gives you powerful program editing commands. Peter Ulrick uses addresses 8192-9215 in your 64K RAM to store machine code subroutines that LOAD more than one BASIC program at a time, renumber programs, merge up to 20 programs, create free-standing transferable data sets and more. The utility is menu-driven from MC but also uses command mode USR calls. It's like having a Disk

Operating System without the disk.

Using RAM-Drive you can concatenate programs on one tape with a command menu.

LOAD RAM-Drive, then load programs you want to string together (one at a time) and store them in RAM-Drive's program stack (32-64K area) with command S. A selection menu program writes in the BASIC area of your ZX/TS. You can swap any program from the stack back and forth into the BASIC area (16-32K) with command T (trade).

Use the renumber command, this time a USR call, to change the line number and increment between numbers of each program. You can then merge programs using another USR call. The result is one program from which you can call up any of the original short games. SAVE the new program in the usual way.

Other useful features of RAM-Drive are: RemFill, Block Move, Fetch, Kill and Wipe.

Mr. Ulrick's documentation gives examples for most functions along with a command summary list. However, most functions are called with USR commands which I found inconvenient. The program loads and moves itself, so you can't easily see the original code.

One other flaw--the documentation doesn't mention that storing over 20 programs is difficult but possible. Each program you store takes up about 1K, so depending on their size it is possible to store more. But, only 20 names can be listed on the screen.

RAM-Drive is a valuable and versatile utilities package.

P. J. Donnelly, Centerport, NY

RAM-Drive was originally marketed by ZX Users Group of NY (Box 560 Wall St., NY, NY) as Disk-M Multi-programming Features, \$25 for non-members. 'RAM-Drive is in the process of becoming an International Publishing and Software product. Contact them for more info.--Ed.

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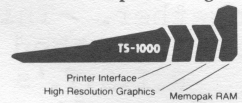



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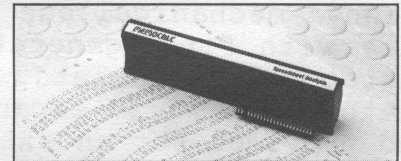
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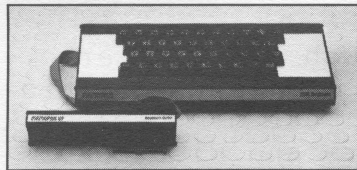


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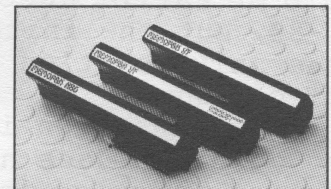
MEMOTECH KEYBOARD For ease of operation, the Memotech keyboard is a high quality standard typewriter keyboard, with TS-1000 legends. The keyboard is cable connected to a buffered interface which is housed in a standard Memopak case and plugs directly into the back of the



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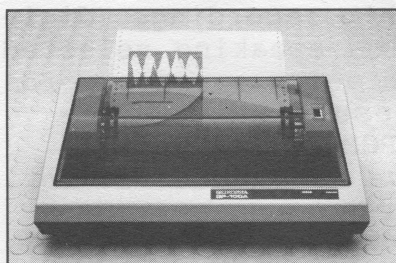
CENTRONICS PARALLEL AND RS232 INTERFACES

Memotech's Interfaces enable your TS-1000 to use a wide range of compatible printers. The resident software in the units gives the



complete ASCII set of characters. Both Memopak Interfaces provide lower case character capabilities and up to 80 column printing. The RS232 Interface is also compatible with modems and terminals.

SEIKOSHA GP 100A PRINTER The Seikosha GP 100A uses a 5x7 dot matrix printing format with ASCII standard upper and lower case character set. Printing speed is 30 characters/second with a maximum width of 80 characters. The printer uses standard fanfold paper up to 9-1/2 inches wide. The GP 100A is offered as a package including cable and interface. Other printer packages are also available through Memotech.



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| High Resolution Graphics | 99.95 | | |
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HARDWARE REVIEW

Product: The Parrot, Voice
Synthesis Module
From: R.I.S.T., POB 499, Fort
Hamilton Sta., NY 11209
Cost: \$89.95 plus \$4 P&H

Allophone concatenation simply means stringing fundamental sounds together. This is the speech synthesis method used in The Parrot.

R.I.S.T.'s module, The Parrot, produces 64 separate allophones. R.I.S.T. used Voicetech's general purpose speech development kit (see Radio Electronics, Mar.83) combined with chips and software to produce a cost effective ZX/TS speech unit.

Using Parrot's pilot program with documentation, I made the unit say "hello" almost immediately. The voice is, unfortunately, that "tinny" mechanical one you associate with first generation robots. Parrot comes complete with a reset button, and ZX/TS expansion bus, and provides for an external power supply to power other peripherals through the unit. The Parrot functions as an I/O port. R.I.S.T. told me Parrot uses ports 0-15 and 64-80, but the initializer program uses only location 03 for IN and OUT commands.

Documentation is professional and good but does not explain the machine language initializing routine, which uses the calculator stack. Most annoying is the lack of OEM specs and schematics on the voice chips. The crash course on voice synthesis in the documentation might be superfluous for some users and certainly could use a bibliography.

Parrot has two minor flaws: you must supply your own speaker, and the external power jack is a sub-mini (these are hard to find).

Overall, R.I.S.T.'s Parrot is an excellent unit and performs up to and beyond my expectations. It has great potential as an announcer, games, clocks and applications

for the handicapped.

Parrot does not speak words you type in. You enter words phonetically, including clicks, stops and pauses after the appropriate three character phoneme or sound codes. R.I.S.T. plans to develop text-to-speech software. Parrot's expanded loader program allows cursor editing, which is a big plus.

R.I.S.T. tells me that future Parrots (starting Apr.1) will include a tape of their long version phoneme entry program (16K needed). After using the 10-line BASIC entry program I don't look forward to keying in the 80 or 90 lines in the longer version.

Paul Donnelly, Centerport, NY

If you already own a Parrot and have a ZX81/TS1000, R.I.S.T. says you should change the MC program, line 6, pg.6, from: (for ZX81s) 103 ENTER to 130 ENTER. (for ZX80s with both ROMs) it stays 43 ENTER.

SPEECH SYNTHESIS

Voice or speech synthesizers combine hardware and software into systems that let your computer talk to you. Computers and Electronics and Radio Electronics (Mar.83) covered two methods of producing human voice sounds on ZX/TS computers. They are: Pulse Code Modulation and Linear Predictive Coding.

Pulse Code Modulation (PCM) uses silicon chip recordings (digitized) of a voice speaking selected words. A human voice encodes words in a ROM chip resulting in life-like sounds. PCM's disadvantage is you must have ROM addresses for all desired words.

Linear Predictive Coding (LPC) feeds a combination of random and periodic signals to the electronic voice tract. These periodic and random signals are modulated digitally to produce unique individual sounds. But, these sounds have an unnatural, mechanical ring to them.

Voicetech sells units that use the LPC technique (covered Mar. 83, Radio Electronics). R.I.S.T.'s Parrot includes Voicetech's evaluation kit and necessary ZX/TS hardware. These units produce sound by concatenating allophones (individual unique sounds) into an intelligible word or phrase.

Which technique of speech synthesis is better? Pulse Code Modulation produces a better sound, but costs more both in dollars and memory space. Current versions of Linear Predictive Coding are hard on untrained ears (it's similar to listening to someone with a heavy accent). But, LPC has potential for infinite speech and the quality will no doubt improve.

As the micro market grows more competitive and peripheral prices drop coupled with increased memory size of most personal computers, both will become viable methods of speech synthesis.

Paul J. Donnelly, Centerport, NY

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BOOK REVIEW

Title: Crunchers--21 Simple Games for the Timex/Sinclair 1000 2K

By: Yin Chiu and Henry Mullish

From: McGraw-Hill Book Company
Princeton Road
Hightstown, NJ 08520
609/426-5254

Price: \$8.95 (softcover, 137 pp.)

Yin Chiu and Henry Mullish are computer professionals and polished writers. Their expertise produced an imaginative and useful book. New Timex Sinclair owners will find the games fun and original and also acquire programming skills while working through Crunchers.

Each game occupies its own chapter. This convention allows: an introduction to the game, the program listing, keyboarding notes, points of interest (programming techniques), and possible adaptations (improvement hints).

Crunchers includes games in every imaginable category. You get card and dice games, skills testing games, invading aliens, spelling and math games, shooting galleries and board games.

I am particularly impressed by the book's appearance. It is well designed and illustrated. Program listings are done in easy-to-read print, and keyword entries are done in boldface type. Keyboard hints list required graphics characters.

Crunchers is an excellent book for Timex Sinclair beginners. It provides hours of fun and valuable instruction. It is well written and programmed. The authors sum it up best with, "none of the programs requires more than the 2K of random access memory (RAM) that is built into the computer. Despite the restriction imposed by the size of available memory, you will be surprised at the wide range of games that are possible."

John C. Connell, Neptune Beach, FL

EASIER LOADING FOR MC UTILITIES

Many machine code utility programs reside in high memory above RAMTOP. Usually, utilities are saved on cassette as a BASIC source program and the MC is stored either in a numeric array, string variable, or REM statement.

Yet, using MC utilities can be a chore. The usual procedure is:

- POKE 16388 and 16389 to establish the new RAMTOP.
- Execute NEW to reinitialize the stacks under the new RAMTOP.
- Load the utility source program.
- Run the utility source to move the MC above the new RAMTOP.
- Execute NEW to dismiss the utility source program.

Now, you load or enter the program your MC program will work on.

You can arrange the utility source program to do all these steps automatically. First, you

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transfer the MC from its original location (a REM statement, for example) to a location below the present RAMTOP but above the future one. Next, the source program POKES 16388 and 16389 to set the new RAMTOP. It then executes NEW, wiping itself out and reinitializing the stacks.

During the MC transfer the machine stack is still active. Consequently, the machine code's final location can't extend too high into memory. Assuming your POKE operation (used by the source to transfer the MC) just adds or subtracts (for example, adding a starting address to a byte index counter), only 44 bytes must be avoided below the initial RAMTOP.

If you have 16K, you can relocate the MC to addresses as high as 32723. If you have the available memory, you can start the MC at location 32000, and allow up to 724 machine code bytes.

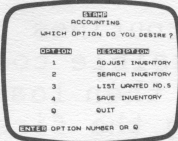
To add an auto function to your source program, add a short routine (I usually start at line 9000) consisting of the SAVE "(label)" instruction followed by GOTO 0. To save your source program, hit GOTO 9000. When you load your program it automatically resumes with the GOTO 0 line. (I use GOTO 0 rather than RUN in case the MC is stored in a numeric array or string variable--RUN would wipe it out.)

Following is an illustrative source program that assumes a 20-byte MC program and a tape save name "PGM".

D. A. Kerr, Dallas, TX

```
1 REM (20 BYTES OF MC)
10 FAST
20 LET A=32000
30 FOR I=16514 TO 16533
40 POKE A,PEEK I
50 LET A=A+1
60 NEXT I
70 POKE 16388,0
80 POKE 16389,125
90 NEW
9000 SAVE "PGM"
9010 GOTO 0
SYNTACTIC SUM: 10019, 8K ROM
```

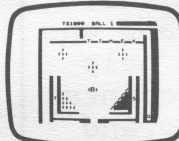

For ZX81 or TS1000 software savings, rip off this ad.



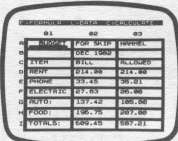
THE STAMP COLLECTOR (#31) Inventory and store up to 600 SCOTT numbers in a single session showing quantity on hand, by major classification, and provide full want list support.



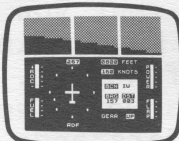
STATES AND CAPITOLS (#32) Test yourself on the fifty states and their capitals. Three options of review are available. (1) States, you provide capitals. (2) Capitals, provide states. (3) A mix of states and capitals.



PINBALL (#35) Plays like real pinball complete with flippers, bumpers, "nudge," bonus points and more. Uses fast, efficient machine code to choose its moves.



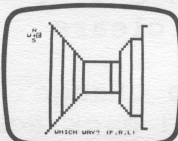
VU-CALC (#11) This program constructs, generates, and calculates large tables for financial analysis, budget sheets, and projections. An immensely powerful analysis chart.



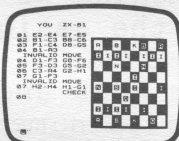
THE FLIGHT SIMULATOR (#6) Take control of highly maneuverable light aircraft. With full controls, instrumentation and navigational aids to avoid hazards in landing.



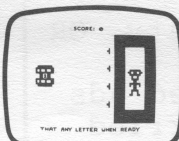
STOCK MARKET GAME (#27) Bull or bear? This realistic simulation lets you analyze information, buy and sell stocks, take out and pay off loans... and win, if you can accumulate \$50,000 in "The Market."



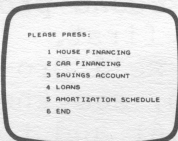
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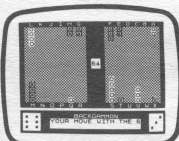
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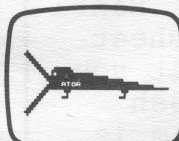
FORTRESS OF ZORLAC (#36) A super fast game in which you are the commander of a fleet of spaceships. Your mission is to rid the galaxy of the dreaded alien, ZORLAC.



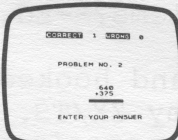
PERSONAL FINANCE PLANNER (#28) Perform calculations, finance a house, a car, keep savings accounts, repay loans and calculate an amortization schedule which can be generated for any of the financial programs.



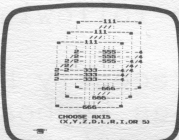
BACKGAMMON AND DICE (#8) A perfect blend of chance and skill. Uses machine code to choose its moves. Full game including graphics board, rolling dice, and double cube. Play the computer or another opponent.



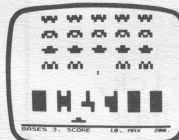
ATOR THE ABC GATOR (#33) Designed to teach recognition and sequence of the alphabet. Combines computer instruction, music and video games.



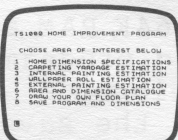
SUPER MATH (#14) Drill yourself on addition, subtraction, multiplication, and division with five levels of difficulty. Each problem graphically depicted.



THE CUBE GAME (#9) The cube can be displayed in three views: (1) Solid; (2) Two-Dimensional (unfolded); and (3) See-thru cube (3-D). You start with the cube solved, set it up any way you like, or pick up from a previous session.



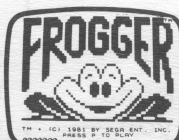
SPACE RAIDERS, BOMBER (#5) TimeX/Sinclair version of the popular arcade games full of bombs and rockets and collisions with skyscrapers.



THE HOME IMPROVEMENT PLANNER (#29) Store up to 20 room measurements (length, width, height), compute total area in each (wall, floor), estimate costs of painting, wall papering and carpets and draw house blueprints.



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DEAR EDITOR

I need ZX/TS business software. I use four of them in four stores--three as satellites and one as a master file. Can anyone help me locate general ledger, accounts receivable, accounts payable, and payroll ledger programs?

Also, I had a problem with my ZX printer--the print faded and the motor slowed on heavy graphics.

I solved this problem with a 12V, 4A power supply and a Radio Shack variable voltage 1 1/2 A voltage regulator IC. I built the circuit shown on the IC package and set the voltage at 9.8V regulated to 1 1/2 A. My printer no longer slows and my computer runs cooler.

Rodney Gowen, Oregon City, OR

SYNTAX (Feb., Mar.) classified ads and new products sections carried ads for business software. CED sells a bookkeeping program (Mar. Class Ads). Finance software program listings are available from Grombacher (Feb. Class Ads). Banta Software's electronic spreadsheet program, Screen-Calc, may suit your needs (Mar. New Products). Cash Journal General Ledger program is from DEC (Mar. Class Ads). Memotech also offers a spreadsheet program called Memocalc (Feb. New Products). Also, SYBER (1345 Diller Rd., Ocean Springs, MS 39564, 601/875-3682) has a Financial Manager program. Mindware (15 Tech Circle, Natick, MA 01760, 617/655-3388) also has business programs. Write for details on programs before you buy. Companies won't make exchanges unless the tape is defective.--Ed.

How are programs locked? I don't understand how LIST command can be turned off. Also, if you have a program with saved DIM and LET statements, how do you restart? Do you GOTO the first statement or some point later in the program?

Can you transfer a numeric value like LET K=1000 to a string like K\$, and to a string slice like K\$(4 TO 8)?

I have several subroutines that I use a lot. Is it possible to load one from tape and then load a second without clearing the first?

Ronny Richardson, Chamblee, GA

First, you can't turn LIST off easily, but you can render it less useful by causing the display file to malfunction. However, these methods won't work against anyone who understands them, so they find limited use. Start programs with saved arrays by going to a point after the DIM statement. Re-execution (RUNing or GOingTO a line before the assignment) clears stored data.

Use STR\$ and VAL to change numbers to numerals and back again.

Finally, you can't directly load two programs from tape into the computer. You can load the first program and POKE it above RAMTOP, then load the second program and POKE down the first. Siriusware and Sinware sell programs to do this. Also, see the review of RAM-Drive (p.6) and the listing for Z-Tool (p.2) in this issue of SYNTAX.--Ed.

Does anyone have any suggestions for the following problems?--Ed.

I recently bought and hooked up a surplus keyboard to my ZX/TS. I used characters from a magazine. Where can I get custom keytops?

Earl Close, Ontario, Canada

I have a ZX81 with 64K RAM and ZX Printer. When saving programs my recordings have developed a click, click that ruins the save when the printer is connected. Do you have any solutions?

Michael Roberts, Des Moines, IA

LIFE EXPECTANCY--8K/16K

This program calculates your life expectancy based on data you input on habits and family history.

Enter Life Expectancy as listed and RUN. Follow the directions on the screen. If you make a mistake, enter XX to restart. You'll get an error code followed by a line number. Subtract 10 from the line number and GOTO the result to continue with Life Expectancy.

Wilfried Eder, Fort Ashby, WV

By subtracting 10 and going back to the previous line number, you can continue instead of starting over in the middle of program execution. The method that allows this is an input after a prompt and incrementing in your program by 10.--Ed.

```

1 REM "LIFE EXPECTANCY CALCULATOR"
10 PRINT "LIFE EXPECTANCY CALCULATION FOR ADULTS 20 TO 65 YRS. OF AGE"
20 PRINT
30 PRINT "TYPE""1""FOR YES, ""2""FOR NO, TO ANSWER QUESTIONS"
40 LET A=72
46 PRINT
50 PRINT "ARE YOU MALE?"
60 INPUT B
70 IF B=1 THEN LET A=A-3
80 IF B=2 THEN LET A=A+4
82 CLS
84 PRINT "1=YES", "2=NO"
86 PRINT
90 PRINT "DO YOU LIVE IN AN URBAN AREA (POPULATION >2 MILLION)?"
100 INPUT B
110 IF B=1 THEN LET A=A-2
111 IF B=1 THEN GOTO 141
112 CLS
114 PRINT "1=YES", "2=NO"
116 PRINT
120 IF B=2 THEN PRINT "DO YOU LIVE IN A TOWN(POPULATION<10,000)?"
130 INPUT B
140 IF B=1 THEN LET A=A+2
142 CLS
144 PRINT
150 PRINT "IF YOU WORK BEHIND A DESK,TYPE ""1""; IF YOUR JOB REQUIRES REGULAR/HEAVY PHYSICAL LABOR,TYPE""2""."
160 INPUT B
170 IF B=1 THEN LET A=A-3
180 IF B=2 THEN LET A=A+3
182 CLS
184 PRINT
190 PRINT "IF YOU EXERCISE STRA

```

```

NOUSLY MORE THAN 5 1/2 HR. SESSIONS/WK,TYPE ""2""; IF YOU DO 2-3 TIMES/WK,TYPE""1""; IF NOT AT ALL,TYPE""0""."
200 INPUT B
210 IF B=2 THEN LET A=A+4
220 IF B=1 THEN LET A=A+2
230 IF B=0 THEN LET A=A
232 CLS
234 PRINT
240 PRINT "TYPE""1""IF YOU LIVE WITH A SPOUSE OR FRIEND,IF NOT,TYPE""2""."
250 INPUT B
260 IF B=1 THEN LET A=A+5
262 CLS
264 PRINT
270 PRINT "IF YOU LIVE ALONE,TYPE NUMBER OF DECADES YOU HAVE LIVED WITHOUT OTHERS SINCE YOU REACHED AGE25,OTHERWISE TYPE""0""."
280 INPUT B
290 LET A=A-B
292 CLS
294 PRINT "1=YES", "2=NO"
296 PRINT
300 PRINT "DO YOU SLEEP MORE THAN 10 HOURS A NIGHT?"
310 INPUT B
320 IF B=1 THEN LET A=A-4
322 CLS
324 PRINT
330 PRINT "IF YOU ARE INTENSE,AGGRESSIVE, EASILY ANGERED,TYPE""1""."
332 PRINT
340 PRINT "IF YOU ARE EASY GOING,RELAXED,A ""FOLLOWER"" ,TYPE""2""."
350 INPUT B
360 IF B=1 THEN LET A=A-3
370 IF B=2 THEN LET A=A+3
372 CLS
374 PRINT
380 PRINT "IF YOU ARE HAPPY,TYPE""1""; IF NOT TYPE""2""."
390 INPUT B
400 IF B=1 THEN LET A=A+1
410 IF B=2 THEN LET A=A-2
412 CLS
414 PRINT "1=YES", "2=NO"
416 PRINT
420 PRINT "DID YOU HAVE A SPEEDING TICKET WITHIN THE LAST YEAR?"
430 INPUT B
440 IF B=1 THEN LET A=A-1
442 CLS
444 PRINT "1=YES", "2=NO"
446 PRINT
450 PRINT "DO YOU EARN MORE THAN 50,000/YR?"
460 INPUT B
470 IF B=1 THEN LET A=A-2
472 CLS
474 PRINT
480 PRINT "IF YOU FINISHED COLLEGE,TYPE""1""; IF GRADUATE SCHOOL,TYPE""2""; IF NEITHER,TYPE""0""."
490 INPUT B
500 LET A=A+B
512 CLS
514 PRINT
520 PRINT "IF YOU ARE 65 OR OVER AND STILL WORKING,TYPE""1""; OTHERWISE TYPE ""2""."

```



```

530 INPUT B
540 IF B=1 THEN LET A=A+3
542 CLS
544 PRINT
550 PRINT "IF ANY OF YOUR GRAND
PARENTS LIVED TO BE 85 OR
OVER,TYPE""2""IF ALL 4 LIVED TO
BE 80 OR OVER TYPE""6"",IF NOT T
YPE""0""
560 INPUT B
570 LET A=A+B
572 CLS
574 PRINT "1=YES", "2=NO"
576 PRINT
580 PRINT "DID EITHER OF YOUR P
ARENTS DIE OF STROKE/HEART ATT
ACK BEFORE AGE 50?"
590 INPUT B
600 IF B=1 THEN LET A=A-4
602 CLS
604 PRINT "1=YES", "2=NO"
606 PRINT
610 PRINT "HAVE ANY OF YOUR PAR
ENTS OR BROTHERS/SISTERS UN
DER AGE 50 HAD A HEART CONDITI
ON,CANCER OR CHILDHOOD DIABETES?"
620 INPUT B
630 IF B=1 THEN LET A=A-3
632 CLS
634 PRINT
640 PRINT "IF YOU SMOKE CIGARET
TES,TYPE""8""IF MORE THAN 2 PAC
KS/DAY;TYPE""6""IF 1-2 PACKS/DAY
;TYPE""3""IF 1/2-1 PACK/DAY,TYPE
""0""IF YOU DO NOT SMOKE."
650 INPUT B
660 LET A=A-B
662 CLS
664 PRINT "1=YES", "2=NO"
666 PRINT
670 PRINT "DO YOU DRINK THE EQU
IVALENT OF 1/4 BOTTLE LIQUOR A
DAY?"
680 INPUT B
690 IF B=1 THEN LET A=A-1
692 CLS
694 PRINT
700 PRINT "IF YOU ARE OVERWEIGH
T,TYPE""8""IF BY >50 LBS,TYPE""4
""IF BY 30 TO 50 LBS,TYPE""2""IF
BY 10 TO 30 LBS, OTHERWISE TYPE
""0""
710 INPUT B
720 LET A=A-B
722 CLS
724 PRINT
730 PRINT "IF YOU ARE MALE AND
HAVE AN ANNUAL CHECK-UP OR
IF YOU ARE FEMALE AND SEE A GY
NECOLOGIST ANNUALLY,TYPE""2"",O
THERWISE TYPE ""0""
740 INPUT B
750 LET A=A+B
752 CLS
754 PRINT
760 PRINT "TYPE""2""IF YOU ARE
BETWEEN 30-40;""3""IF BETWEEN 40
-50;""4"" BETWEEN 50-60;""5""IF
>70"
770 INPUT B
780 LET A=A+B
782 CLS
784 PRINT
790 PRINT "YOUR LIFE EXPECTANCY
IS: ";A; " YEARS"
800 STOP
SYNTACTIC SUM: 57181, 8K ROM

```

PROGRAM IMPROVEMENTS/REFINEMENTS

Running Syntactic Sum with Variables (SQ Winter'82) in slow wipes out the program you are checking. To prevent this, add a FAST call to the Syntactic Sum program. First, lower RAMTOP with: POKE 16388,200
POKE 16389,127
NEW

Change Syntactic Sum Program to:

```

1 FOR L=32717 TO 32766
2 POKE L,P(L-32716)
3 NEXT L
4 LET L=32714
5 POKE L, 205
6 LET L=L+1
7 POKE L, 35
8 LET L=L+1
9 POKE L, 15
10 REM THE REST OF THE PROGRAM
IS MUCH THE SAME.
14 PRINT "SYNTACTIC SUM WITH V
ARIABLES IS NOW SAFELY TUCKED AW
AY ABOVE RAMTOP"
15 PRINT "" TO OBTAIN A SYNTA
CTIC SUM, ENTER ""PRINT USR 3271
4""
17 STOP
18 SAVE "SUM"
19 GOTO 1
SYNTACTIC SUM: 19091, 8K ROM

```

Patrick O'Connor, Manitoba, Canada

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GREEN AND BLACK AND READ ALL OVER

My nine-inch black and white low-res monitor smears characters because of its poor resolution. Then I saw an ad for a 9x4 1/2" green and black monitor for \$75 from John Meshna in Lynn, MA. Looking at the specs and schematic convinced me this high-res monitor provides enough gain to connect to a ZX/TS with no interface.

I find the screen presentation a major improvement. Still, after adjusting it, my 9" monitor shows squares as rectangles--not a problem for text, but graphics are too wide. At maximum height and minimum width you'll get 60x85mm "squares" using X=40:

```
2 INPUT X
5 FOR J=1 TO X
10 FOR I=1 TO X
20 PLOT I,J
30 NEXT I
40 NEXT J
SYNTACTIC SUM: 3837, 8K ROM
```

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length of coax with a BNC connector on one end. At the other end, bare about 1/4" of the center wire and make a 1/2"-long pigtail of shield.

Remove the 5 screws from the bottom cover of your computer (look under the rubber feet). Remove the bottom cover and the two screws from the board. Remove top cover from board. You'll see a small metal box (modulator) on the component side of the board with three wire leads to the board.

Solder the coax center lead to the wire lead closest to the board edge. Solder the pigtail to the lower edge of the metal box.

With a knife, cut the top cover of the computer so the coax cable can pass through. Reassemble your ZX/TS computer.

For 9" monitor only, (12" model works as-is) remove the cover and find the control names etched along the circuit board edge. With a screwdriver fully rotate three controls: gain, counter-clockwise; height, clockwise; ABC, clockwise. Using a plastic hex-head alignment tool, set the width to minimum. Do not adjust the other controls. Put the metal cover back on.

Connect the leads and go green.

Leo Morgan, Peabody, MA

We tried 2 Meshna monitors, the 9" No. SPL-310-24 and the 12" MOT-12 (Motorola No. J12VP102-Z07). \$75 each from John Meshna, Jr., Inc., POB 62, Lynn, MA 01904. Call Doug at 617/595-2275. You'll need a Belden 17504 line cord for the 9" monitor. Disregard the letter about reverse video--you'll get black letters on green. Use the 12"-type for normal perspective.

Both surplus monitors use 75-Ohm input resistors, but the ZX/TS drives them. Our Zenith ZVM-121 monitor also runs with this video connection if set at max. contrast and black level. Some computers may drive the modulator and monitor simultaneously--ours won't.--KO

POKE GRAPHICS

Speed up graphics and save memory by using POKE. For example, POKE 16511,63 uses less memory and gives the same result as PRINT AT 0,1;"Z". Try it.

POKE graphics are simply a more efficient way of printing to the screen. You POKE a character code in one of the display file's memory locations and the character with that code appears on screen. This method accesses 32 columns and 24 lines compared to 32 columns and 21 lines using PRINT.

To use POKE graphics, find PRINT's starting address in the display file by PEEKing the system variable DF_CC at address 16398. To find this address enter the following line:
PRINT PEEK 16398+256*PEEK 16399
You should get 16510 with no program in your machine.

Unlike other computers, your ZX/TS's display file is not fixed;

its address changes with program length. As you add more program lines, the starting address gets higher. You can always find the starting address by including
LET A=PEEK 16398+256*PEEK 16399
in your program.

Try the following program to see POKE graphics capabilities. It also shows the greater speed of POKE graphics as opposed to PRINT graphics. It is an etch-a-sketch program controlled by 5, 6, 7 and 8 arrow keys.

Enter and RUN, BREAK to exit.

Len Harmon, Metairie, LA

```

10 LET A=PEEK 16398+256*PEEK 1
6399
20 POKE A,128
30 IF INKEY$="5" THEN LET A=A-
1
40 IF INKEY$="6" THEN LET A=A+
33
50 IF INKEY$="7" THEN LET A=A-
33
60 IF INKEY$="8" THEN LET A=A+
1
70 GOTO 20
SYNTACTIC SUM: 9664, 8K ROM
    
```

THE INS AND OUTS OF THE

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DON THOMASSON

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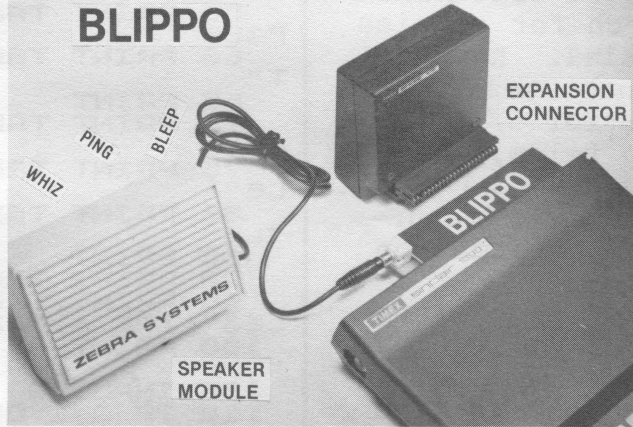
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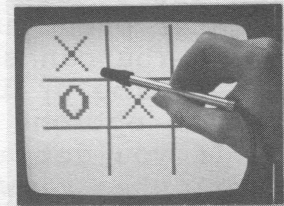
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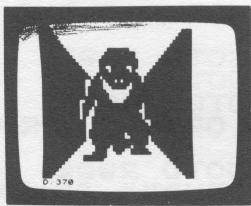
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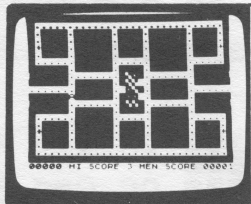
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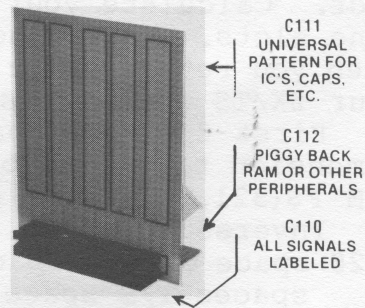


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OFFICE MANAGER--8K/16K

Office Manager creates and stores three separate files: a phone directory, report file (each 150 lines max.), and memo file (20 lines max.).

You can move freely from one file to another without reloading from tape or disturbing data in any file. To switch files, type END, ENTER, and the menu reappears. Select the new mode and ENTER.

When using the report or memo option, you can only enter one line at a time. Type in each line and ENTER after each one.

Enter phone numbers last name first. You can search for entries by last name or initial. Report and memo options cannot search.

If you get an error 5/(line number) when viewing files, the screen is full. Hit CONT to go on. GOTO 5 returns you to main menu.

You can save file information on tape or print it out.

Print option asks which lines you want to print. If you want to print only a portion of a file, find the starting and ending line numbers by selecting display options 3, 6 or 9 (depending on the file). The screen displays the start and end slots of each file. Each line of your file occupies 1 slot. Calculate your start and end line slots. Enter these numbers when you return to print option--your ZX/TS prints just those lines.

First time you load the program dimension the files by entering: DIM F\$(321,31) then, enter GOTO 1.

Inverse graphics are:

20 space Office space Manager 7 spaces T/S space 1000 space
2403 11 graphic sevens
2709 18 graphic sevens
2720 space File space Slot 2 spaces
Variables

F\$=File string array

C=Menu choice

Z\$=Any input or choice

L=Line counter; subscript

S=Start print line

F=Finish print line

D=Data input (search mode)

Joe Glass, Cinnaminson, NJ

```
1 REM OFFICE MANAGER USES AN
ARRAY (F$) 321 BY 31. THIS MUST
BE ENTERED BY DIRECT COMMAND.
5 FAST
10 CLS
15 PRINT
20 PRINT "OFFICE MANAGER"
T/S 1000
25 PRINT
30 PRINT TAB 5;"1 OPEN PHONE B
OOK"
35 PRINT TAB 5;"2 SEARCH PHONE
BOOK"
40 PRINT TAB 5;"3 ALTER PHONE
BOOK"
45 PRINT
50 PRINT TAB 5;"4 OPEN REPORT
FILE"
55 PRINT TAB 5;"5 VIEW REPORT
FILE"
60 PRINT TAB 5;"6 ADD TO REPOR
T"
65 PRINT
70 PRINT TAB 5;"7 OPEN MEMO FI
LE"
75 PRINT TAB 5;"8 VIEW MEMO FI
LE"
80 PRINT TAB 5;"9 ALTER MEMO F
ILE"
85 PRINT
90 PRINT TAB 4;"10 PRINT FILE"
95 PRINT TAB 4;"11 SAVE ALL FI
LES";TAB 4;"12 VIEW ALL FILES"
100 PRINT AT 21,0;"ENTER CHOICE
"
105 INPUT C
110 IF C<1 OR C>12 THEN GOTO 10
0
150 GOSUB 2000
160 IF C=1 OR C=3 THEN GOSUB 21
00
165 IF C=4 OR C=5 OR C=6 THEN G
OSUB 2200
170 IF C=7 OR C=8 OR C=9 THEN G
OSUB 2300
175 IF C=10 THEN GOTO 2400
180 IF C=11 THEN GOTO 2500
185 IF C=2 THEN GOTO 2700
190 IF C=3 OR C=6 OR C=9 THEN G
OTO 2800
191 IF C=12 THEN GOTO 2900
195 PRINT "TYPE ""END"" TO EXIT
"
200 IF C=1 OR C=4 OR C=7 THEN I
NPUT F$(L)
205 IF F$(L,1 TO 3)="END" THEN
GOTO 2600
210 PRINT F$(L)
215 LET L=L+1
220 IF C=1 AND L>150 OR C=3 AND
L>150 THEN GOTO 2600
225 IF C=4 AND L>300 OR C=5 AND
L>300 OR C=6 AND L>300 THEN GOT
O 2600
230 IF C=7 AND L>320 OR C=8 AND
L>320 OR C=9 AND L>320 THEN GOT
O 2600
235 GOTO 200
250 STOP
300 REM SUBROUTES FOLLOW
2000 CLS
2005 PRINT
```



```

010 RETURN
0100 LET L=1
0105 RETURN
02000 LET L=151
02005 RETURN
02300 LET L=301
02305 RETURN
0400 GOSUB 2000
0401 PRINT "PARAMETERS:"
0402 PRINT " "
0403 PRINT "PHONE= 1 TO 150";TAB
0;"REPORT= 151 TO 300";TAB 0;"M
FNO= 301 TO 320"
0404 PRINT
0405 PRINT "STARTING LINE?"
0410 INPUT S
0415 PRINT "FINISH LINE?"
0420 INPUT F
0425 PRINT AT 10,0;"PRINTING FIL
E SLOTS:";TAB 0;S;" TO ";F
0430 LET L=S
0435 LPRINT F$(L,1 TO 31)
0440 LET L=L+1
0443 IF L=F THEN GOTO 2600
0445 GOTO 2435
0500 GOSUB 2000
0505 PRINT "ALL FILES WILL BE SA
VED IN THE STANDARD SINCLAIR FO
RMAT."
0510 PRINT
0515 PRINT "SIMPLY PRESS ENTER.."
0516 INPUT Z$
0518 SAVE "FILE"
0520 GOTO 1
0600 PRINT AT 21,0;"KEY ENTER TO
CONTINUE"
0605 INPUT Z$
0610 GOTO 10
0700 GOSUB 2000
0705 PRINT "ENTER SEARCH DATA"
0709 PRINT " "
0710 INPUT Z$
0711 LET D=LEN Z$
0715 LET L=1
0720 IF F$(L, TO D)=Z$ THEN PRIN
T "FILE SLOT:";L;TAB 0;F$(L)
0725 LET L=L+1
0730 IF L>150 THEN GOTO 2600
0735 GOTO 2720
0800 GOSUB 2000
0805 IF F$(L,1 TO 3)="END" THEN
GOTO 2620
0810 LET L=L+1
0815 GOTO 2805
0820 PRINT "FILE ENDS AT SLOT: "
.L
0825 PRINT "ENTER DATA--END TO E
XIT"
0830 INPUT F$(L)
0835 IF F$(L,1 TO 3)="END" THEN
GOTO 2600
0840 PRINT F$(L)
0845 LET L=L+1
0850 IF C=3 AND L>150 THEN GOTO
10
0855 IF C=6 AND L>300 THEN GOTO
10
0860 IF C=9 AND L>320 THEN GOTO
10
0865 GOTO 2830
0900 GOSUB 2000
0905 FOR L=1 TO 320
0910 PRINT F$(L)
0915 NEXT L
0920 GOTO 2600
3000 REM OFFICE MANAGER WAS WRIT
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```

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